

ENERGY CONSERVATION TECHNICAL ASSISTANCE UPDATE

January 2012 through December 2012

**Illinois Department of Commerce and Economic Opportunity
Illinois Energy Office
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Springfield, Illinois 62701**

EXECUTIVE SUMMARY

During 2012, the Department of Commerce and Economic Opportunity provided technical assistance to local governments and other units of government through its Energy Efficiency Portfolio of programs, referred to as Illinois Energy Now. These programs include Energy Performance Contracting; Energy Code Training, Education and Technical Assistance; and the Smart Energy Design Assistance Center (SEDAC). In addition, grants to three organizations provide additional opportunities for technical assistance through the Trade Ally Program, Application Outreach Program, and Metropolitan Mayors' Caucus Aggregation Program. Some of the highlights include:

Energy Performance Contracting Program

- For over 13 years, the Energy Performance Contracting Program has provided assistance to the public and non-profit sectors. During this time, program staff oversaw the implementation of over \$380 million in energy efficient capital improvements through performance contract arrangements resulting in over \$124 million in combined annual savings.
- In 2012, DCEO worked on energy performance contracts with the City of Chicago, Cook County, Illinois State University, Northeastern Illinois University, University of Illinois Campuses at Champaign, Chicago, and Rockford, Governors State University, Kankakee Housing Authority, Housing Authority of Cook County, School Districts #116 and #199, Springfield Airport, and Chicago Public Schools and several other agencies.

Code Training and Education Program

- During 2012, DCEO partnered with the International Energy Conservation Consultants, LLC., to hold 48 sessions to train 1490 local code officials, engineers, architects, and contractors on the upcoming 2012 International Energy Conservation Code (IECC). The training was designed to help with implementation and enforcement of the new code which Illinois was soon to adopt with amendments. In addition, 5 trainings were held for 143 Illinois heating and air-conditioning contractors and code enforcement officials on ACCA Manuals 'J', 'S', and 'D' to try to improve right sizing of equipment in new buildings.
- In addition, the Department and its grantee provided code-related technical assistance in the form of 1) 302 total interpretations (231 written letters/e-mails and 71 verbal/telephone responses) during the 2012 calendar year, 2) 27 presentations and Q and A sessions at technical forums and trade association meetings, 3) 20 consulting sessions with municipalities across the state, 4) and multiple consulting sessions with the city of Chicago on amendments to its code.

Smart Energy Design Assistance Center

The Smart Energy Design Assistance Center (SEDAC) provides advice and analyses enabling both public and private facilities in the State of Illinois to increase their economic viability through the efficient use of energy resources. During 2012, SEDAC provided:

- Technical assistance consisting of Levels 1, 2, 3 and 4 services to 153 local government

clients. These local government clients initially received technical assistance in response to an inquiry via telephone, email, or SEDAC application. Of these, 113 also received energy assessments for a specific building. SEDAC also provided follow up implementation assistance to 85 local governments. SEDAC also provided outreach activities including 9 workshops and 21 presentations and trainings to local government attendees.

- SEDAC also provided Retro-Commissioning services to local governments in Illinois. In 2012, SEDAC completed Retro-Commissioning plans and began ongoing implementation assistance for 31 local government buildings. SEDAC continued ongoing implementation assistance and verification for 13 RCx clients. SEDAC also began work on 16 new Retro-commissioning projects.

Other Illinois Energy Now Programs

- The Trade Ally Program provides general contractors, lighting contractors, HVAC contractors, engineers, architects, energy service companies, wholesalers, distributors and retailers with the training and knowledge to help local government and other public sector clients navigate the incentive process, including completing DCEO incentive applications.
- The EEPS Application Outreach Program administered by the Illinois Association of County Board Members markets the Illinois Energy Now programs to hard-to-reach audiences, focusing on smaller municipalities across the state, and assisting those communities in obtaining energy audits and in maneuvering the Illinois Energy Now application process.
- Through the Energy Efficiency Aggregation Program the Metropolitan Mayors' Caucus (MMC), in partnership with 360 Energy Group, is identifying, qualifying, and assisting many of its 273 local government members in implementing energy efficiency projects.

ENERGY CONSERVATION TECHNICAL ASSISTANCE UPDATE

For the Period January 2012 through December 2012

INTRODUCTION:

The Energy Conservation Act (20 ILCS 1115) was signed into law in September 1979. The law requires that the Department provide technical assistance in the development of thermal efficiency standards and lighting efficiency standards to units of local government, upon request by such unit. The law also states that the Department shall provide technical assistance in the development of a program for energy efficiency in procurement to units of local government, upon request by such unit. The Technical Assistance Programs provided under the law are supported by funds provided to the State pursuant to federal acts that provide funds for energy conservation efforts through the use of building codes.

REPORTING REQUIREMENT:

In August 1989 the law was amended to require that the Department issue an annual report to the Governor and General Assembly describing its authorities under this Act and describing the energy efficiency programs and projects undertaken by units of local government with the assistance of the Department.

PROGRAM OVERVIEWS:

ENERGY PERFORMANCE CONTRACTING PROGRAM

Energy Performance Contracting is an innovative arrangement for designing, installing and financing energy improvements where the savings achieved by the project are guaranteed to amortize the cost of the project over the term of the agreement. Energy performance contracts provide a practical means to fund many types of building improvements including new lighting technologies, high-efficiency boilers and chillers, and energy management controls. Through the Department's Energy Performance Contracting Program assistance is provided to units of state and local government, schools, and not-for profit organizations to promote the use of energy performance contracting. Services provided by the Department include:

- Competitive Procurement Process
- Comparative Evaluation Methodology
- Technical Review of Project Audits and Scope
- Review and comment on Basic Contract Documents

- Advice on Contract Negotiations
- Assistance on Evaluating Project Financing Options
- Review of Project Performance Based on Measured Savings

Under an energy performance contract an agreement is made with a private energy service company (ESCO) that will identify and evaluate energy-saving opportunities and then recommend a package of improvements to be paid for through savings. To ensure savings, the ESCO offers staff training and long-term maintenance services. Additionally, the ESCO will guarantee that project savings meet or exceed annual payments and cover all project costs. Energy Performance Contracting agreements are typically ten years in length, are adaptable to site specific needs and are best suited for facilities that have the following characteristics:

- Annual utility cost in excess of \$100,000
- Stable use of the facility for the next five to ten years
- Minimal availability of funds for energy related capital improvements
- Have accomplished minimal energy efficiency upgrades over the past ten years

Summary of Assistance:

- For over thirteen years, the Energy Performance Contracting Program has provided assistance to the public and non-profit sectors. During this time, program staff and consultant oversaw the implementation of about \$ 380 million in energy efficient capital improvements through performance contract arrangements resulting in over \$24 million in combined annual savings.
- Over 1247 hours of technical assistance was provided in 2012 to 28 local governments, schools, universities, housing authorities and non-profit entities seeking assistance with considering or implementing an energy performance contracting.
- Ten energy performance contract projects with a total project cost of over \$84 million were completed in 2012, and are now in the "Measurement & Verification of Savings" stage of the process. These projects are expected to save over \$ 6.4 million annually.

BUILDING CODES PROGRAM

The Department is required under the Energy Efficient Buildings Act to provide training and technical assistance on the the Illinois Energy Conservation Code for both commercial and residential buildings. The code in place during 2012 was based on the 2009 International Energy Conservation Code (2009 IECC). During 2012, the Illinois Capital Development Board was to implement an update to the Illinois code based on the 2012 IECC. However, Senate Bill 3724, signed by the Governor on August 17, 2012, amended the implementation date of the 2012 Illinois Energy Conservation Code to January 1, 2013. It lengthened the time the Illinois Capital Development Board has to review and adopt future published editions of the Code and make them effective. The purpose was to allow stakeholders more time for training and preparation to build, design, and enforce the future updated codes. Administrative Rules to adopt the 2012 International Energy Conservation Code with amendments as Illinois Energy Conservation Code were approved by the Joint Committee on Administrative Rules, December 11, 2012. On January 1, 2013, Illinois became the first state to begin enforcing the 2012 IECC (as amended).

The focus of DCEO code programs during 2012 was on providing training on the upcoming 2012 IECC-based code and continuing to provide technical assistance and interpretation of the 2009 IECC-based Illinois Energy Conservation Code still in force during 2012.

Code Training and Education Program

In support, the Illinois Energy Office – Department of Commerce & Economic Opportunity (DCEO) partnered with International Energy Conservation Consultants LLC (IECC LLC), to train 1,633 code enforcement officials, architects, engineers, builders, contractors, energy raters and other construction industry stakeholders on the provisions of the 2012 *International Energy Conservation Code* (IECC®), and corollary applications of the ANSI/ASHRAE 90.1-2010, *Energy Standard for Buildings Except for Low-Rise Residential Buildings*, (Standard 90.1).

Across the 44 residential home evaluations identified in the Illinois' DOE-sponsored compliance study¹, certain patterns of compliance and non-compliance were observed. With respect to IECC 403.6 Equipment Sizing, compliance was generally not evident for calculating heating and cooling loads and right-sizing equipment. In some cases, where calculations are presented to jurisdictions, output of equipment specified or actually installed is substantially greater than load. In many instances, “paper” compliance varies from that observed in the field. Moreover, with Illinois homes requiring the degree of air-sealing (5ACH50), the Illinois residential heating and air-conditioning community will need to adapt to respond to this “right-sizing” mandate in short order.

Accordingly, DCEO CY2012 training events were designed to prepare the Illinois design and construction community for statewide implementation and enforcement of the Illinois Energy Conservation Code for privately-funded residential and commercial buildings, and state-funded buildings.

- During the period 1/1/2012–5/31/2012, DCEO hosted 24 trainings for 828 participants; an additional ten (10), unique training and urban field-inspection workshops were provided to the Chicago Department of Buildings (DoB)–Bureau of Inspections (74) and –Bureau of Plan Review (41), totaling 115 participants; and an additional training was hosted at the 2012 Better Buildings: Better Business™ Conference, Renaissance Schaumburg, IL, totaling 38 participants. Overall, the number of participants trained in the first half of BITE Codes 2012 totaled 981.

The aforementioned trainings had a 70% attendance rate between registrants and attendees at events (walk-ins were not registered prior to training). The average attendance rate was 35 participants per training, with the highest attendance at any one location reaching capacity at 45 participants.

- During the period 6/1/2012 – 12/31/2012, DCEO hosted 19 trainings for 652 participants; fourteen (14) workshops were provided on the Illinois Energy Conservation Code (2012 IECC and ASHRAE 90.1-2010 with Illinois Amendments) to 509 Illinois construction industry stakeholders, in addition to five (5) ACCA Manuals ‘J’, ‘S’, and ‘D’ classroom training events were provided to 143 Illinois heating and air-conditioning contractors and code enforcement officials. Overall, the number of participants trained in the second half of BITE Codes 2012 totaled 652.

¹ DCEO Project Number 146626. Accessed April 17, 2013 from http://www.ildceo.net/NR/rdonlyres/EFB19489-E69C-45CD-9299-89812EC1EB3A/0/FinalReport_BaselineComplianceStudy.pdf

- The aforementioned trainings had a 77% attendance rate between registrants and attendees at events (walk-ins were not registered prior to training). The average attendance rate was 40 participants per training, with the highest attendance at any one location reaching capacity at 90 participants.

Code Technical Assistance Program

DCEO partnered with IECC LLC to provide technical assistance in the form of:

1) Strategic presentations for Illinois Investor-Owned-Utilities (IOUs), Cities (i.e., Chicago, Rockford, Champaign/Urbana, Metro-East communities), trade-, code enforcement-, and contractor associations, and

2) Written and verbal code interpretations of current Illinois state energy code and construction statutes accessed via web-based clearinghouse housed directly on the DCEO's webpage (<http://www.ildceo.net/energycode>) and made freely available via a dedicated telephone hot-line to code enforcement officials and the general public Monday – Friday (excluding state and national holidays) from 8:00 am to 4:00 pm Central Time.

- During the period 1/1/2012 – 5/31/2012, DCEO provided code-related technical assistance in the form of 190 total interpretations (140 written letters/e-mails and 50 verbal/telephone responses), encompassing 152 person-hours for the 5-month period of performance. This is an effective, annual rate of 300 technical interpretations for the first half of BITE Codes 2012.

DCEO supported the pending adoption of the 2012 IECC by presenting informational and question and answer outreach at 10 technical forums/professional trade association meetings; 13 consulting sessions with municipalities during the first half of 2012.

- During the period 6/1/2012 – 12/31/2012, DCEO provided code-related technical assistance in the form of 112 total interpretations (91 written letters/e-mails and 21 verbal/telephone responses), encompassing 96 person-hours for the 6-month period of performance. This is an effective, annual rate of 300 technical interpretations for the second half of BITE Codes 2012.

DCEO supported the pending adoption of the 2012 IECC by presenting informational and question and answer outreach at 17 technical forums/professional trade association meetings; seven (7) consulting sessions with municipalities during the second half of 2012.

- DCEO also provided dedicated development and consultation services to the City of Chicago, Department of Buildings–Office of Regulatory Review, in support of proposed amendments to [Section 18-13 of the Municipal Code of Chicago](#) (i.e., Chicago Building/Energy Code), consistent with adoption, implementation and enforcement of the Illinois Energy Conservation Code statewide.

SMART ENERGY DESIGN ASSISTANCE CENTER

The Smart Energy Design Assistance Center (SEDAC) provides advice and analyses enabling private and public facilities in the State of Illinois to increase their economic viability through the efficient use of energy resources. SEDAC is sponsored by the Illinois Department of Commerce and Economic Opportunity in partnership with ComEd and Ameren Illinois Utilities and provides valuable services at no cost to for-profit businesses and public facilities. SEDAC is managed by the School of Architecture at the University of Illinois at Urbana-Champaign. In September 2008, under the Illinois Energy Efficiency Portfolio Standard (EEPS), SEDAC services were expanded to include public entities in Ameren and ComEd electric service areas. In June 2012, public entities in Ameren, Nicor, North Shore and Peoples natural gas service areas were added.

During 2012, SEDAC provided technical assistance consisting of Levels 1, 2, 3 and 4 to 153 local government clients. These local government clients initially received technical assistance in response to an inquiry via telephone, email, or SEDAC application. Of these 113 received energy assessments for a specific building. These energy assessment services provide recommendations for improving energy efficiency specific to the local government building. Most are based on a site visit and include quantified energy and cost savings. In 2012, SEDAC identified potential annual energy savings from quantified energy reduction measures of 141,901 MBtu with potential annual cost savings of \$2,126,041 annually. SEDAC also provided follow up implementation assistance to 85 local governments. This service moves beyond the identification of appropriate energy savings measures to additional technical assistance needed for implementing the energy savings measures.

In 2012, SEDAC also provided retro-commissioning (RCx) services to local governments in Illinois. SEDAC offers retro-commissioning guidance by identifying quick payback measures (payback of 18 months or less) to improve the control, scheduling, and operation of energy-consuming systems to match the current functional requirements of a building. The end result is significant energy and demand savings, and in many cases, improved occupant comfort and productivity. In 2012, SEDAC completed retro-commissioning plans and began ongoing implementation assistance for 31 local government buildings. For these local government clients, SEDAC identified 255,439 MBtu in estimated annual energy savings and \$2,998,516 in estimated annual cost savings for quick-payback retro-commissioning measures. SEDAC continued ongoing implementation assistance and verification for 13 RCx clients. In addition, SEDAC began work on 16 new RCx projects.

In addition to direct technical assistance to local governments focused on their specific buildings, SEDAC also provided workshops and other outreach activities on energy efficiency to local governments throughout the state. In 2012, SEDAC conducted 9 workshops targeted to Illinois local governments and other building managers covering energy efficiency topics including energy-savings strategies in existing buildings, energy savings strategies for new construction, and energy efficiency implementation and management strategies. SEDAC also conducted 21 additional presentations and trainings to local government attendees and others on energy efficiency topics.

OTHER ILLINOIS ENERGY NOW PROGRAMS

Grants to three organizations under the DCEO Illinois Energy Now programs provide additional opportunities for local governments in Illinois to receive technical assistance on energy efficiency. Each is briefly described below:

UIC-Energy Resources Center, Trade Ally Program

The DCEO Illinois Energy Now Trade Ally Program has been created for the benefit of Trade Ally partners and their clients, forging connections that can lead to increased energy savings through the DCEO incentives. Trade Allies are general contractors, lighting contractors, HVAC contractors, engineers, architects, energy service companies, and energy-saving product wholesalers, distributors and retailers who are trained on the program to deliver more energy efficient building solutions to their public sector clients. Through a series of workshop, webinars, and Trade Rallies, they are fully trained on the portfolio of energy efficiency programs and develop a solid understanding of program rules and procedures. With ongoing program support and guidance from program staff and engineers, DCEO Trade Allies can help their clients navigate the incentive process, including completing DCEO incentive applications. Unlike trade ally programs offered through public utilities, the DCEO Trade Ally Program is designed exclusively for industry professionals working with local government and other public sector clients.

Illinois Association of County Board Members

Under this project county governments and five regional planning agencies are participating in the EEPS Application Outreach Program. The program is providing technical assistance in completing Illinois Energy Now applications within the Ameren, ComEd, and Nicor utility territories. The project is marketing the Illinois Energy Now program to hard-to-reach audiences, focusing on smaller municipalities across the state, and assisting those communities in obtaining energy audits and in maneuvering the Illinois Energy Now application process.

Metropolitan Mayors' Caucus

This Energy Efficiency Aggregation Program for units of local government will assist the metropolitan Chicago area units of local government in taking advantage of every Illinois DCEO energy efficiency opportunity possible. The Metropolitan Mayors' Caucus (MMC), in partnership with 360 Energy Group, is identifying, qualifying, and assisting in implementing energy efficiency projects for some of the Caucus' 273 local government members and former Smart Energy Design Assistance Center (SEDAC) clients. These projects will include lighting and other fast turn-around measures (including some HVAC, controls, etc.) in the ComEd territory and thermal efficiency projects for North Shore and Nicor gas delivery customers.

Summary

It is important to note the Energy Efficiency Portfolio and the Energy Conservation Act complement one another in goals and energy savings. Requests for these services continues to increase as more public and private entities are focusing on energy efficiency. The Department will continue to provide the afore mentioned technical assistance in conjunction with the Energy Efficiency Portfolio and other Department programs.